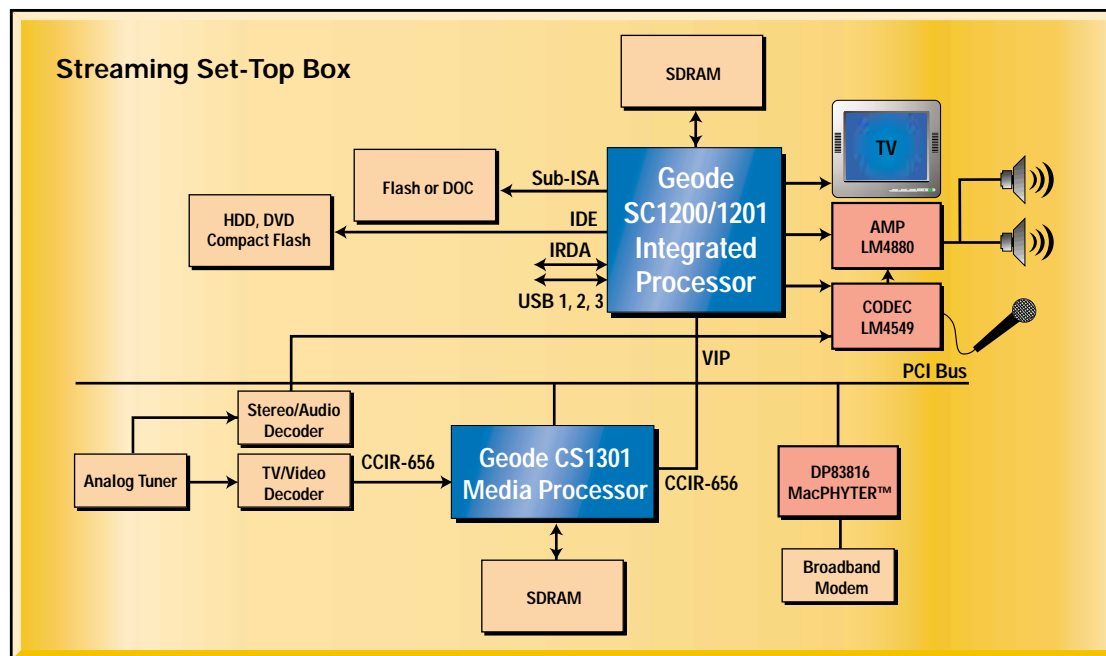


Geode™ Streaming Media Solutions

For Advanced Set-Top Boxes



Set-Top Box

Solution Overview

The Geode SC1200 and CS1301 solution for entertainment on demand set-top boxes provides:

- Consumer quality audio and video optimized for television at an affordable price
- A targeted platform for broadband IP set-top boxes with an analog tuner for future PVR
- Support for key operating systems, Linux, Windows CE®, and Windows Embedded XP
- Support for key codecs: MPEG-2, MPEG-4, and Windows Media

For more information visit:
ia.national.com

Advances in media encoding schemes are enabling a broad array of multimedia information appliances. National Semiconductor has teamed up with TriMedia Technologies to deliver the optimal solution to enable these devices. Adding the Geode™ CS1301 media processor (based on TriMedia) to our Geode SC1200 integrated processor enables a compelling streaming media experience optimized for a set-top box.

Optimizing the “Three Ps” of Information Appliances

The promise of streaming media set-top boxes offers a series of implementation challenges. Like all world-class IA devices, they must offer the optimal balance of the “three Ps” - performance, power consumption, and price. Given the high computational power required for encoding or decoding a Windows Media™ or MPEG stream, balancing the three Ps is a significant challenge. The PC world approaches this challenge with more

megahertz, but this ends up being a costly solution that consumes far too much power to be a suitable solution for IAs. Using the SC1200 and CS1301 results in consumer quality audio and video at an affordable price.

The Optimal Solution – Distributed Processing

Rather than throwing more x86 silicon at the challenge, National has moved the media processing to a core designed for decoding and encoding of media – the TriMedia VLIW core. This leaves the Geode processor targeted to those things best managed by an x86 processor like running the operating system, browser, network or I/O.

From a performance standpoint, the TriMedia core has the horsepower for the most challenging video and audio tasks. As an example, it enables real-time MPEG-4 encode – something that even a 1.1 GHz x86 processor is unable to perform.

From a power standpoint, the Geode SC1200 and CS1301 solution can deliver a decoded Windows Media or MPEG-2 or MPEG-4 stream with web browsing occurring concurrently for under 4 watts – a half-watt less than the other x86 chipsets, which only perform the decoding.

From a price standpoint, the SC1200 and CS1301 solution comes in at a fraction of the silicon real estate of other x86 chipsets, and consequently, a fraction of the price.

Flexibility to Handle the Numerous and Evolving Media Formats

National chose TriMedia as its media processor because of its flexibility to handle the broad range of media formats required by IAs. Required formats include: MPEG-2, MPEG-4, and Windows Media Technology. By the end of 2002, National will support all these media formats on the operating systems of importance to set-top box designers: Linux, Microsoft's Windows CE and Embedded XP. Additionally through the network of independent TriMedia developers, National will support a growing number of CODECs in 2002, including capability in areas like MPEG-2 and MPEG-4 audio and video encoding for personal video recording.

Enabling Entertainment On Demand Set-Top Boxes

As the company that pioneered information appliances, National is proud to take the world into the era of high quality cost-effective set-top boxes.

Example applications that will benefit from the SC1200 and CS1301 solution:

- Streaming set-top boxes for full screen MPEG-2, MPEG-4, and Windows Media decoding
- DVD playback integrated into a set-top box
- Audio and video encoding for analog PVR
- Multimedia routers for sending encoded video and audio over a home network to external devices

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